

A Herpetofaunal Inventory of the Missouri National Recreational River and the Niobrara National Scenic River

Interim Report with
Results through 31 October 2003

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INTRODUCTION

The National Park Service's Northern Great Plains Inventory and Monitoring Network has determined that complete inventories of amphibian and reptile species are necessary for the Missouri National Recreational River (MNRR) in Nebraska and South Dakota and the Niobrara National Scenic River (NIOB) in Nebraska. Herpetofaunal surveys were initiated for MNRR in May 2003 and NIOB in June 2003.

METHODS AND MATERIALS

Several techniques have been employed to uncover various amphibian and reptile taxa. The most commonly used technique has been the visual encounter survey, which is simply visiting an area and recording all species that are encountered. Searching beneath natural cover objects is also incorporated within visual encounter surveys. At MNRR, visual encounter surveys have been conducted on the river from a boat, on several large islands within the river system, and at several riverbank locations including Karl E. Mundt NWR, Mulberry Bend SWMA (NE), Ponca State Park (NE), and private properties which are accessible by watercraft. They have also been conducted at several locations along the Niobrara River and Verdigre Creek portions of MNRR. Due to the inaccessibility of private lands, visual encounter surveys at NIOB have been restricted to bridge crossings, however a large area of land owned by the Kansas Audubon Society has also been searched.

Artificial cover objects have been placed at Karl E. Mundt NWR, Ponca State Park, and a South Dakota Game, Fish, and Parks Wildlife Production Area (WPA) south of Vermillion, SD. They have also been placed on Goat Island, the James River Island, St. Helena Island, and an unnamed island directly across from Karl E. Mundt WMA. The predominant form of artificial cover has been 7/16 inch oriented strand board (OSB) cut into 24 in x 32 in sections. Approximately 225 of these boards have been placed at the aforementioned locations. At NIOB, 25 artificial cover boards were placed in various habitats on the Kansas Audubon Society property.

Road surveys, both diurnal and nocturnal, were conducted on numerous occasions between July and October along every road that borders MNRR except for a section of closed road that occurs between Greenwood and Pickstown, SD. Most roads that are adjacent to NIOB are on private properties and are inaccessible, however road surveys were conducted wherever possible.

In June 2003, four automated recording systems ("frog loggers") were placed at locations in MNRR. Three locations were along the Missouri River, and the fourth was placed in an area near the mouth of the Niobrara River. Loggers were left in place for seven days, at which point the tapes were recovered and analyzed for frog and toad calls.

Aquatic turtle traps were set at both parks on several occasions between July and September 2003. Traps were baited with recently killed fish and were set out for 24-36 hour time periods before being checked.

RESULTS AND DISCUSSION

Missouri National Recreational River

Boat and island surveys have been conducted along nearly the entire length of both the upper and lower sections of MNRR. Table 1 displays a list of expected species provided by NPS at the start of this inventory. It also includes an annotation of whether the species has yet been found at MNRR. Presently, 67% of the expected species have been found.

Table 1. Expected vs. found species list for MNRR.			
<u>Common Name</u>	<u>Scientific Name</u>	<u>Expected</u>	<u>Found</u>
Bullfrog	<i>Rana catesbeiana</i>	Y	Y
Bullsnake	<i>Pituophis catenifer</i>	Y	Y
Common Garter Snake	<i>Thamnophis sirtalis</i>	Y	Y
Comon Snapping Turtle	<i>Chelydra serpentina</i>	Y	Y
Cope's Gray Treefrog	<i>Hyla chrysoscelis</i>	Y	Y
Eastern Hognose Snake	<i>Heterodon platyrhinos</i>	Y	Y
False Map Turtle	<i>Graptemys pseudogeographica</i>	Y	Y
Great Plains Toad	<i>Bufo cognatus</i>	Y	N
Milk Snake	<i>Lampropeltis triangulum</i>	Y	N
Northern Cricket Frog	<i>Acris crepitans</i>	Y	Y
Northern Leopard Frog	<i>Rana pipiens</i>	Y	Y
Northern Prairie Skink	<i>Eumeces septentrionalis</i>	Y	N
Northern Water Snake	<i>Nerodia sipedon</i>	Y	N
Painted Turtle	<i>Chrysemys picta</i>	Y	Y
Plains Garter Snake	<i>Thamnophis radix</i>	Y	Y
Plains Leopard Frog	<i>Rana blairi</i>	Y	N
Plains Spadefoot Toad	<i>Spea bombifrons</i>	Y	N
Racer	<i>Coluber constrictor</i>	Y	Y
Ringneck Snake	<i>Diadophis punctatus</i>	Y	Y
Six-lined Racerunner	<i>Cnemidophorus sexlineatus</i>	Y	Y
Smooth Softshell Turtle	<i>Apalone mutica</i>	Y	Y
Spiny Softshell Turtle	<i>Apalone spinifera</i>	Y	N
Tiger Salamander	<i>Ambystoma tigrinum</i>	Y	N
Western Hognose Snake	<i>Heterodon nasicus</i>	Y	N
Western Chorus Frog	<i>Pseudacris triseriata</i>	Y	Y
Western Fox Snake	<i>Elaphe vulpina</i>	Y	Y
Woodhouse's Toad	<i>Bufo woodhousii</i>	Y	Y
Total Found / Expected = 18/27 (67%)			

Only frogs, toads, and turtles have been found on islands in the Missouri River. Several sites on nearly all of the islands visited have exhibited obvious turtle nesting areas, and hundreds of turtle tracks left behind by nesting females have been identified.

In addition, obvious lizard tracks have been found on several islands and along bank areas, however lizards have yet to be seen or captured.

Most turtle occurrences have been uncovered by boat. Basking False Map and Softshell Turtles (species unknown) were easily seen by slowly approaching woody debris on river banks. Turtle traps have yielded Smooth Softshell, False Map, Painted, and Snapping Turtles.

Cover boards have only turned up snakes so far, however to be fully effective, boards should be left in place for several months before they become active hiding sites for most species of herpetofauna. Most other snake species have been found by conducting road surveys along both blacktop and gravel roads adjacent to the river. Some individuals were found via individual encounter surveys.

Although anuran amphibians were heard via automated recording systems, they were also heard during several individual encounter and road surveys. Additionally, specimens were found at numerous backwater areas either as adults, newly metamorphosed froglets, or larvae.

Findings of significance include Cope's Gray Treefrogs at several backwater locations along both the Missouri and eastern reaches of the Niobrara Rivers. This species was not known to occur west of the extreme southeastern corner of South Dakota but has now been documented as far north and west as below the dam at Lake Oahe. Softshell and False Map Turtles have been found from Ponca State Park clear upstream to Karl E. Mundt NWR. Another significant range extension was for the Six-lined Racerunner, which is only known from western South Dakota but was found south of Elk Point in a Game Production Area on the South Dakota bank of MNRR. Populations of Northern Cricket Frogs have also been found here and at several other locations along the Missouri on both the South Dakota and Nebraska banks. This species is rare in South Dakota and is believed to be suffering from population declines at several historic northern locations.

Niobrara National Scenic River

The greatest obstacle in accomplishing a thorough survey of this park is the lack of landowner cooperation. Several landowners have been contacted and have refused access to their property for the sake of a survey. As a result, survey activity has been limited to the right of ways by bridge crossings as well as a single property managed by the Kansas Chapter of the Audubon Society. Since much of this stretch of the Niobrara River is relatively homogeneous, results from these locations will provide a fairly good indication of species compositions along the remainder of the eastern half of the park.

Table 2 provides a list of expected species, encountered species, and species that have been previously documented (provided by NPS) within NIOB. Presently the species encounter rate is only 42%, however several species on the expected list are well outside the range of this park and are actually not expected to be found. Additionally, the majority of survey work at NIOB will not be conducted until spring 2004. At this point, the most significant result is the encounter of a single False Map Turtle on the Audubon property. This species has never been recorded this far upstream along

Figure 2. Expected, found, and previously documented species from NIOB.

Common Name	Scientific Name	Expected	Found	Previously Documented
Blanding's Turtle	<i>Emydoidea blandingii</i>	Y	N	Y
Bullfrog	<i>Rana catesbeiana</i>	Y	N	Y
Bullsnake	<i>Pituophis catenifer</i>	Y	Y	Y
Common Garter Snake	<i>Thamnophis sirtalis</i>	Y	Y	Y
Common Snapping Turtle	<i>Chelydra serpentina</i>	Y	Y	Y
Eastern Fence Lizard	<i>Sceloporus undulatus</i>	Y	Y	Y
Eastern Hognose Snake	<i>Heterodon platyrhinos</i>	Y	N	Y
Great Plains Toad	<i>Bufo cognatus</i>	Y	N	Y
Lesser Earless Lizard	<i>Holbrookia maculata</i>	Y	N	Y
Many-lined Skink	<i>Eumeces multivirgatus</i>	Y	N	Y
Milk Snake	<i>Lampropeltis triangulum</i>	Y	N	Y
Northern Cricket Frog	<i>Acris crepitans</i>	Y	Y	Y
Northern Leopard Frog	<i>Rana pipiens</i>	Y	Y	Y
Northern Water Snake	<i>Nerodia sipedon</i>	Y	N	Y
Ornate Box Turtle	<i>Terrapene ornata</i>	Y	Y	Y
Painted Turtle	<i>Chrysemys picta</i>	Y	Y	Y
Plains Garter Snake	<i>Thamnophis radix</i>	Y	Y	Y
Plains Leopard Frog	<i>Rana blairi</i>	Y	N	N
Plains Spadefoot Toad	<i>Spea bombifrons</i>	Y	N	Y
Prairie Rattlesnake	<i>Crotalus viridis</i>	Y	Y	Y
Racer	<i>Coluber constrictor</i>	Y	Y	Y
Ringneck Snake	<i>Diadophis punctatus</i>	Y	N	N
Six-lined Racerunner	<i>Cnemidophorus sexlineatus</i>	Y	Y	Y
Smooth Green Snake	<i>Liochlorophis vernalis</i>	Y	N	Y
Smooth Softshell Turtle	<i>Apalone mutica</i>	Y	N	N
Spiny Softshell Turtle	<i>Apalone spinifera</i>	Y	N	Y
Tiger Salamander	<i>Ambystoma tigrinum</i>	Y	N	Y
Western Chorus Frog	<i>Pseudacris triseriata</i>	Y	Y	Y
Western Fox Snake	<i>Elaphe vulpina</i>	Y	N	N
Western Hognose Snake	<i>Heterodon nasicus</i>	Y	N	Y
Woodhouse's Toad	<i>Bufo woodhousii</i>	Y	Y	Y
Total Found / Expected = 13/31 (42%)				

the Niobrara River and is generally a resident of the Missouri River in this area. Frogs, toads, and lizards were found in significant numbers on the Audubon property. Turtle traps were set on this property as well, however only painted turtles were encountered. Only the generalist species of snakes have been encountered so far, however a wet meadow on the Audubon site may provide several of the species that have yet to be encountered. Road surveys have turned up Bullsnakes, Racers, Prairie Rattlesnakes, and Common Garter Snakes as well as Ornate Box Turtles.

FUTURE EFFORTS

Survey activity will begin again early in spring 2004. Frog loggers will be placed at strategic locations in both parks and will remain set up for the duration of the anuran amphibian breeding season. Cover boards will be checked several times throughout the spring and early summer, and turtle traps will again be employed by mid-May. Additional visual encounter surveys will be conducted by boat as well as by visiting selected habitats on the banks and in backwater areas in both parks. Finally, to ascertain the presence of lizard and snake species on MNRR islands, drift fences with pit fall traps will be erected at strategic locations on several islands. Drift fences will also be used at NIOB bridge crossings if the habitat allows. Access to additional land along NIOB has been obtained and the site will be visited by early May 2004. Survey efforts are expected to be completed by mid- to late summer 2004.